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10/582,700

06/13/2006

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EXAMINER

GREEN, RICHARD R

ART UNIT

PAPER NUMBER

4174

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

| | | | |
|------------------------------|--------------------------------------|--|--|
| Office Action Summary | Application No. 10/582,700 | Applicant(s) EICHHOLZ ET AL. | |
| | Examiner Richard R. Green | Art Unit 4174 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 13 June 2006 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>6/13/2006</u> . | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims.

Therefore, the:

hot engine bleed air to first and second hollow chambers of claims 7, 8, 21 and 22;

electric heating of claims 10-12 and 23;

ventilators of claim 13;

second hollow chambers' termination into aircraft fuselage of claim 5;

waste air exhaust into fuselage after flowing through panels of cargo hold door of claim 20

must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 46.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet,

and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1-24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Regarding claims 1 and 16, the language "for warm waste air which originates from the cooling of the aircraft's electronic equipment" does not clearly specify what originates from the cooling of the aircraft's electronic equipment, nor does it clearly specify the steps involved between the electronic equipment and the panels.

Regarding claim 17, the phrase "preferably" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by

"preferably"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

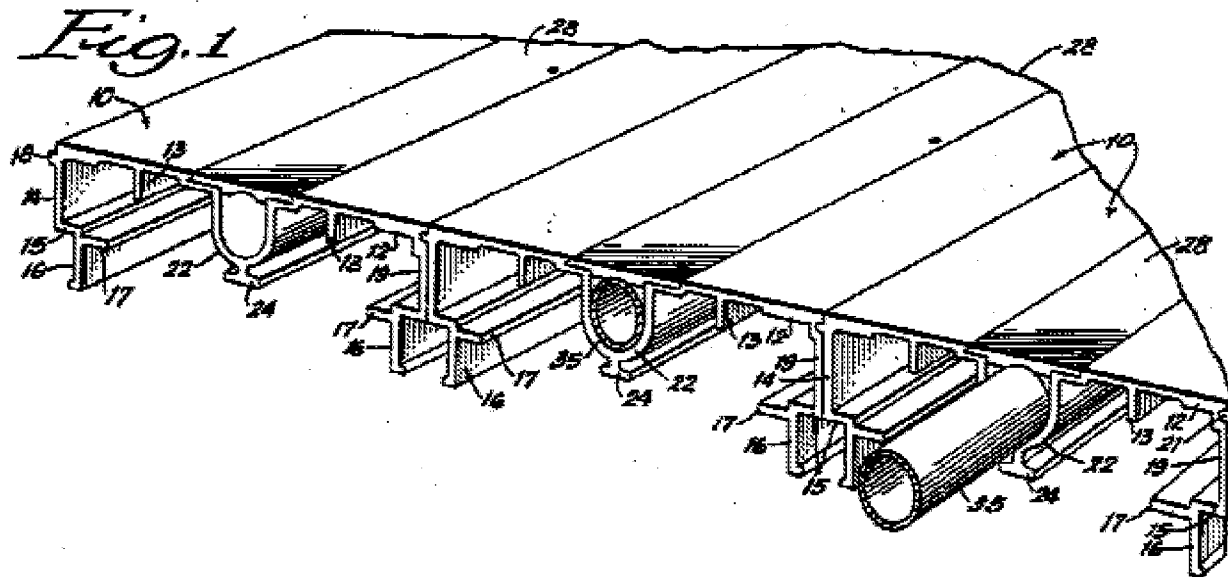
Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-2, 4, 9, 14-15 are rejected under 35 U.S.C. 102(b) as being anticipated by US 2,799,481 (Becker).



Claim 1: Becker teaches floor heating, comprising:

a floor (fig. 1) made up of heatable panels (units 10, fig 1), characterized in that the panels have running through them first hollow chambers (22, fig. 1) and a feed line

(column 3 lines 22-24) connected to the first hollow chambers (16, fig. 2) for warm waste air which originates from the cooling of the aircraft's electronic equipment. While the panels disclosed are not taught for use in an aircraft or for "waste air which originates from the cooling of the aircraft's electronic equipment," they are disclosed for steam and are considered capable of being heated by waste air from an aircraft's electronic equipment.

Claim 2: Becker teaches floor heating in accordance with claim 1, characterized in that the first hollow chambers (22) extend in the longitudinal direction of the aircraft inside the panels (column 3, lines 5-6).

Claim 4: Becker teaches floor heating in accordance with claim 1, characterized in that the first hollow chambers (22) are in flow connection with second hollow chambers (22) in floor panels (10) of a cargo hold door (not shown) of the aircraft. The panels on the cargo hold door of applicant are disclosed to be similar to the panels on the floor and the panels of Becker are considered to be capable of use as panels for the cargo hold door as well. As for the chambers being in flow connection, applicant's sets of panels are connected by a member not shown, and so the panels of Becker can be considered in flow connection to the same degree as applicant's.

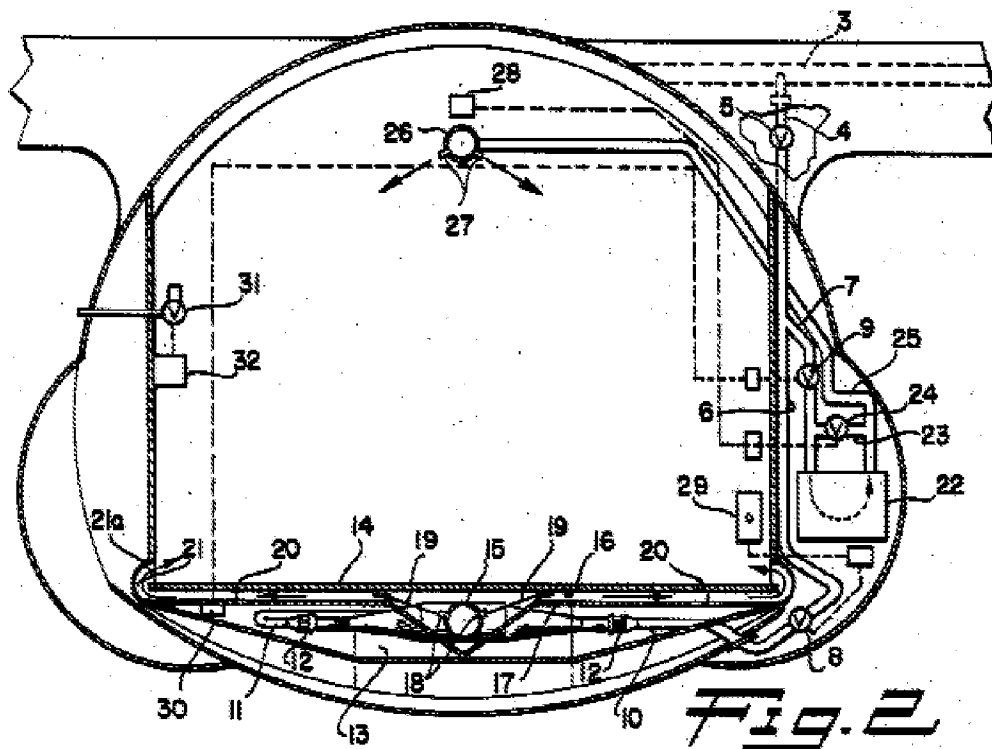
Claim 5: Becker teaches floor heating in accordance with claim 4, and the panels taught are considered capable of being arranged such that second hollow chambers abut the wall of the fuselage, which is considered to "terminate into the aircraft fuselage."

Claim 9: Becker teaches floor heating in accordance with claim 1, characterized in that the panels (10) are thermally uncoupled from a structure which supports the floor (column 4, lines 3-6). The depending shape of the panel heating conduits and the insulation taught are considered adequate to thermally uncouple the panel from the supporting structure.

Claim 14: Becker teaches floor heating in accordance with claim 1, characterized in that the panels (10) are provided with thermal insulation on their lower side (column 4, lines 3-6).

Claim 15: Becker teaches floor heating in accordance with claim 1, characterized in that the panels (10) are profile elements produced by extrusion, in particular by continuous extrusion (column 4, lines 8-9).

Claims 1, 2, and 13 are rejected under 35 U.S.C. 102(b) as being anticipated by US 3,203,473 (Goode).



Claim 1: Goode teaches floor heating for an aircraft, comprising a floor (14, fig. 2) made up of a heatable floor, characterized in that the floor has running through it first hollow chambers (16, fig. 2) and a feed line (6, fig. 2) connected to the first hollow chambers for warm waste air which originates from the cooling of the aircraft's electronic equipment. Though Goode does not disclose individual panels the entire floor can be considered as a panel, which is considered heatable. Goode does disclose hollow chambers (16, fig. 2) in the floor (14) through which hot air is fed by duct 6 (col. 2, lines 60-64), which can be considered a feed line.

Claim 2: Goode teaches floor heating in accordance with claim 1, characterized in that the first hollow chambers extend in the longitudinal direction of the aircraft inside the panels (better seen in fig. 1, but clear when seen that fig. 2 is a cross section that the spaces 16 extend longitudinally).

Claim 13: Goode teaches floor heating in accordance with claim 1, characterized in that ventilators (jet pump 12) are positioned in the hollow chambers in order to generate a forced flow through the hollow chambers. The jet pumps disclosed are considered capable of generating a forced flow through the hollow chambers, and are disclosed to be located in the hollow space of the floor.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 3, 5, 16-20, and 24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of US 5,701,755 (Severson).

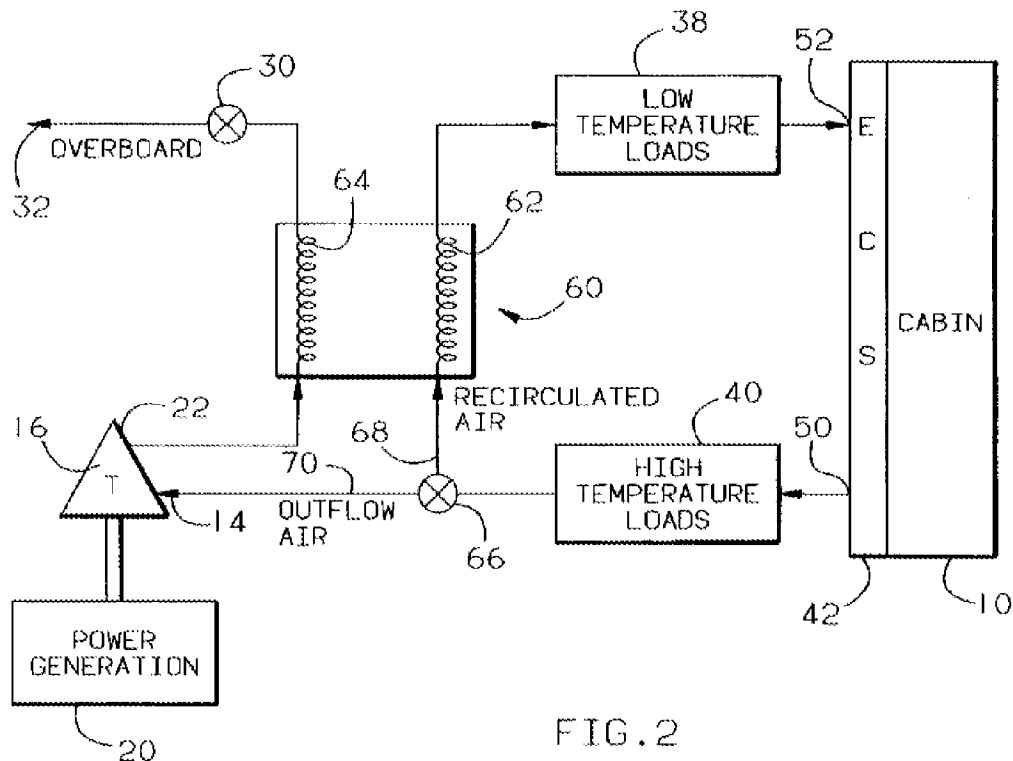


FIG. 2

Claim 3: Becker teaches floor heating in accordance with claim 1, with first hollow chambers. Becker fails to teach a feed line connecting the hollow chambers with an avionics bay of an aircraft.

Severson teaches a low temperature load (38, fig. 2) which may comprise sensitive electronics such as avionics (col. 2, line 56), which, when cooled, dumps the waste air into the cabin of the aircraft through a port (52, fig. 2). Though Severson does not teach the use of the hot waste air to heat the floor of the aircraft, the floor panels disclosed by Becker require a heating medium and it would have been considered obvious to one of ordinary skill in the art to use the hot air from Severson in the panels of Becker for the purposes of heating the floor.

Claim 5: Becker teaches floor heating in accordance with claim 4, but does not teach chambers that specifically exhaust into a fuselage.

Severson teaches heating exhausts the air from second hollow chambers into electronics bays (item 40, fig. 2 Severson) which are considered to be a part of the fuselage. It would have been obvious to a person of ordinary skill in the art at the time of the invention to exhaust the air run through the panels of Becker into the fuselage of the plane as in Severson for the purposes of cooling high temperature electronics (col. 2, lines 50-53)

Claim 16-20 and 24: Becker teaches a method for heating a floor made of panels with hollow chambers arranged longitudinally (col. 3, line 6), but fails to specifically teach that warm waste air originating from the cooling of electronic equipment is conveyed through those hollow chambers.

Severson teaches warm waste air originating from the cooling of an avionics bay (col. 2, lines 53-56) in the aircraft is conveyed to the cabin of the aircraft, wherein said cabin acts as a heat sink (col. 1, lines 25-30) and can be considered to be heated by the waste air. It would have been obvious to a person of ordinary skill in the art at the time of the invention to have used the waste air in Severson in the panels of Becker for the purposes of heating a floor. Further, in so doing, the warm waste air would run longitudinally, as the chambers in Becker are so arranged.

The warm waste air of Severson is considered to be conveyed in the manner described in the rejection of claim 4 to the floor panels taught by Becker that are capable of installation in the aircraft's cargo hold door.

The warm waste air of Severson is taught to flow out into an electronics bay (fig. 2 Severson) for the purposes of cooling high temperature electronics (col. 2, lines 50-

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52) and the electronics bay is considered to be part of the fuselage. It would have been obvious to a person of ordinary skill in the art at the time of the invention to further cool high temperature electronics with the exhaust from the floor panels of Becker.

A forced flow is considered to be generated in the hollow chambers, since the warm waste air of Severson is pumped through the avionics bay and would be still under that pressure flowing through the panels of Becker.

Claims 6, 8 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of US 3,203,473 (Goode) and US 6,058,725 (Monfraix).

Becker teaches floor heating in accordance with claim 1 with hollow chambers, but does not specifically teach an additional feed line connected to hot engine bleed air, or mixing hot engine bleed air with warm waste air from the avionics bay before it is conveyed to the panels of the floor.

Goode teaches floor heating by hot engine bleed air. It would have been obvious to a person of ordinary skill in the art at the time of the invention to run the hot engine bleed air of Goode through the floor panels of Becker for the purpose of heating the floor.

It is not novel to mix air flows to reach a desired temperature; Monfraix teaches a method of hot air supply wherein hot bleed air is mixed with cold ram air, both with feed lines, to heat an aircraft to a desired temperature.

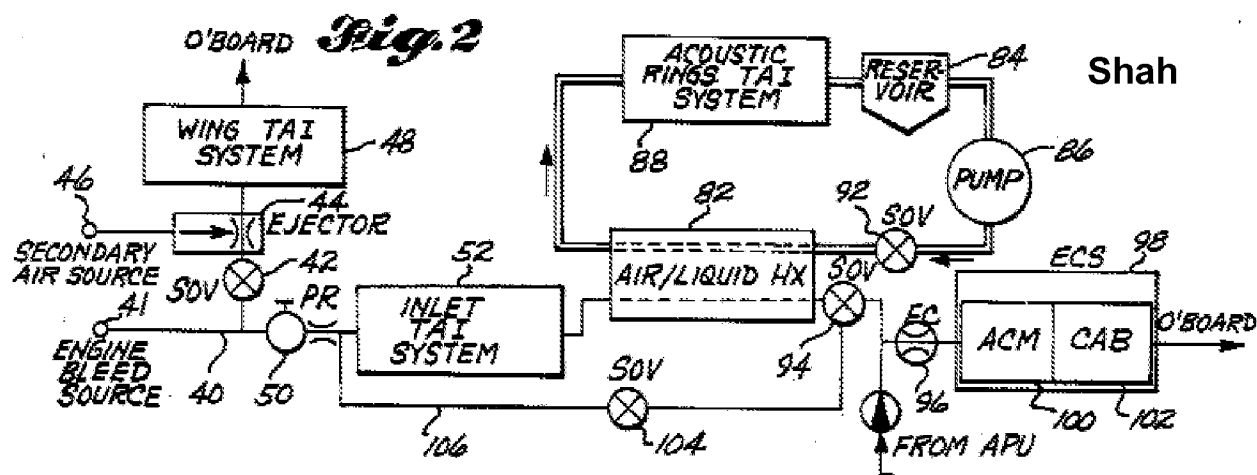
The feed line cross section is considered to determine the amount of hot engine bleed air supplied.

Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of Severson and Monfraix as applied to claims 16 and 19 above, and further in view of Goode and US 3,981,466 (Shah).

Becker teaches a method for heating a floor made of panels with hollow chambers arranged longitudinally (col. 3, line 6), but fails to specifically teach that warm waste air originating from the cooling of electronic equipment is conveyed through those hollow chambers, or that hot engine bleed air is mixed into waste air.

Severson teaches warm waste air originating from the cooling of an avionics bay (col.2, lines 53-56) in the aircraft conveyed to the cabin of the aircraft, wherein said cabin acts as a heat sink (col. 1, lines 25-30) and can be considered to be heated by the waste air. The waste air of Severson would have been obvious to run longitudinally through the panels of Becker for the purpose of heating a floor as previously stated regarding claim 16. Severson fails to teach a second mixing of hot engine bleed air with warm waste air from an avionics bay before the warm waste air flows through a cargo hold door.

Goode teaches a floor and ceiling heated by hot engine bleed air (col. 2, lines 5-10). It would have been obvious to a person of ordinary skill in the art to mix said bleed air with the warm waste air from the avionics bay for the purpose of heating the floor to a desired temperature not reached by one source of air alone as in Monfraix. Goode fails to teach mixing hot engine bleed air again prior to the cargo door.



Shah teaches an integrated deicer and environmental control system wherein hot engine bleed air is run through the deicer (52, fig. 2) before it is run to the environmental control system. Shah teaches an additional feed line (106, fig. 2) which runs directly to the environmental control system, which can be used when the aircraft cabin is not heated sufficiently by the bleed air that has already run through the deicing system (col. 5, lines 1-9). It would have been obvious to a person of ordinary skill in the art to use the secondary direct bleed air feed line of Shah (fig. 2, item 106) to direct hot engine bleed air directly to a second area to be heated in the case that the temperature of the hot bleed air / warm waste air blend that had passed through the floor already was insufficient to heat the second area to a desired temperature, similar to the reason given by Shah for the direct secondary feed.

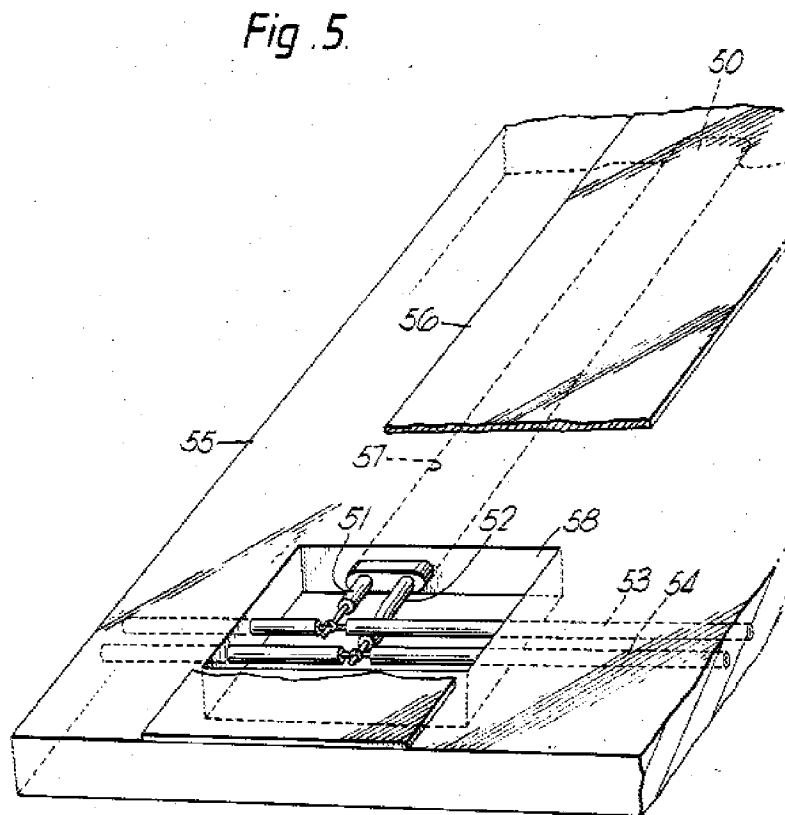
Claims 6-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of Shah.

Becker teaches floor heating in accordance with claim 1, with first and second hollow chambers as previously described regarding claim 4. Becker fails to teach hot engine bleed air as the heating fluid, nor a secondary feed line.

Shah teaches primary and secondary feed lines for hot engine bleed air to an environmental control system (fig. 2; primary line running through item 52, secondary line 106, environmental control 96), and it would be obvious to a person of ordinary skill in the art to connect the two lines in the places claimed in the case that the air flowing from first to second hollow chambers was insufficient to heat the second chambers alone, as described previously in the rejection to claim 22.

The feed line cross-sections are considered to determine the amount of hot engine bleed air supplied.

Claims 10-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of US 4,733,057 (Stanzel) and US 6,611,659 (Meisiek).



Claim 10: Becker teaches floor heating in accordance with claim 1, but fails to teach that panels are provided with electric heating mats for supplementary heating.

Stanzel teaches an electric heater for installation under a floor for the heating of said floor, but fails to provide a reason for installation in addition to another source of heat.

Meisiek teaches an electric heating mat for installation in the floor of an aircraft for purposes of heating a floor in combination with another cabin heating system "in order to achieve homogenous surface temperatures at the floor level," (paragraph 11). It would have been obvious to a person of ordinary skill in the art to install the electric heater of Stanzel in the floor panel of Becker, perhaps in the additionally provided chambers visible at arrows 17 in figure 1 of Becker, for the purpose of heating areas of

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the floor not sufficiently heated by the warm waste air of Severson, for the same reason as Meisiek; to "achieve homogenous surface temperatures at the floor level."

Claim 11: Becker teaches floor heating in accordance with claim 1, but fails to teach that panels are provided with electric heating mats for supplementary heating positioned on the lower side of said panels.

Stanzel teaches an electric heater for installation under a floor which can be combined with the panel of Becker for reasons given by Meisiek (p. 11) as stated regarding claim 10, and additionally teaches that it is traditionally advantageous to install electric heaters beneath a covering for protection from "mechanical abuse or spillage of hazardous fluids (col. 1, lines 9-13), and discloses a metal plate (56, fig. 5) for such purpose. It would have been obvious to a person of ordinary skill in the art at the time of the invention to place the heater disclosed by Stanzel underneath floor panel disclosed by Becker (for claims 10, 11), for the purpose of protecting the electric heater (Stanzel col. 1, lines 9-13).

Claim 12: Becker teaches floor heating in accordance with claim 1, but fails to teach electric heating coils integrated into hollow chambers for supplementary heating.

Stanzel teaches an electric heater which may be combined with the panels of Becker for reasons given by Meisiek (Meisiek p. 11) and integrated in the hollow chambers for protection from mechanical damage (Stanzel col. 1, lines 9-13) and would be installed with least alteration of the panel parallel to the pipe (35, Becker fig. 1) in the additionally provided chambers visible in fig. 1 of Becker, such as those pointed to by arrows 17 (for claim 12).

Claim 23 is rejected under 35 U.S.C. 103(a) as being unpatentable over Becker in view of Severson as applied to claim 16 above, and further in view of Stanzel and Meisiek.

Becker teaches floor panels (fig. 1, Becker) with hollow chambers meant for the conveyance of hot fluids, but fails to teach that they are heated by warm air from an avionics bay, or additional electronic heating.

Severson teaches a cabin heated by warm air from avionics equipment (fig. 2, Severson), which can be combined with the panels of Becker for reasons stated in the rejection of claim 16, but fails to teach additional electronic heating.

Stanzel teaches an electric heater for installation under a floor (fig. 5, Stanzel) for the purposes of heating the floor, but fails to provide a reason for heating a floor in an area already heated.

Meisiek teaches an electric heating mat for installation in the floor of an aircraft for purposes of heating a floor in combination with another cabin heating system "in order to achieve homogenous surface temperatures at the floor level," (paragraph 11). It would have been obvious to a person of ordinary skill in the art to install the electric heater of Stanzel in the floor panel of Becker, perhaps in the additionally provided chambers visible at arrows 17 in figure 1 of Becker, for the purpose of heating areas of the floor not sufficiently heated by the warm waste air of Severson, for the same reason as Meisiek; to "achieve homogenous surface temperatures at the floor level," providing a method in accordance with claim 16, characterized in that the panels forming the floor are additionally heated by electricity.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 6,019,315 (Scherer) discloses an aircraft door heated through ventilation pipes through and around the door.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard R. Green whose telephone number is (571)270-5380. The examiner can normally be reached on Monday - Thursday 7:00 am - 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Kimberly D. Nguyen can be reached on (571)272-2402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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/R. R. G./
Examiner, Art Unit 4174

/Kimberly D Nguyen/
Supervisory Patent Examiner, Art Unit 4174